JC02 Rec'd PCT/PTO 22 MAR 2002

| FORM PTO-1390 (REV 1-2000) | U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE | ATTORNEY'S DOCKET NUMBER 27795-00028USPX |
|---|---|---|
| TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371 | | U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5) 10/089119 |
| INTERNATIONAL APPLICATION NO. PCT/AU00/01170 | INTERNATIONAL FILING DATE September 27, 2000 | PRIORITY DATE CLAIMED October 1, 1999 |

TITLE OF INVENTION

Transport of Encoded Information Across a Core Network

APPLICANT(S) FOR DO/EO/US

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Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. X This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.

2. ___ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U S.C. 371.

3. X This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S C. 371(b) and PCT Articles 22 and 39(1).

4. x A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.

5. X A copy of the International Application as filed (35 U.S.C. 371(c)(2))

   a X is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ___ has been transmitted by the International Bureau.
   c. ___ is not required, as the application was filed in the United States Receiving Office (RO/US)

6. _ A translation of the International Application into English (35 U.S.C. 371(c)(2)).

7. ___ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C 371(c)(3))

   a ___ are transmitted herewith (required only if not transmitted by the International Bureau).
   b ___ have been transmitted by the International Bureau.
   c. ___ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ___ have not been made and will not be made.

8. ___ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).

9. X An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)) (unsigned))

10. _ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

**Items 11. to 16. below concern other document(s) or information included:**

11. x An Information Disclosure Statement under 37 CFR 1.97 and 1 98.

12. ___ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.

13. X A FIRST preliminary amendment.

14. _ A SECOND or SUBSEQUENT preliminary amendment.

15. _ A substitute specification.

16. _ A change of power of attorney and/or address letter.

17. _ A computer-readable form of the sequence listing in accordance with PCT Rule 13.2 and 35 U.S.C 1.821 - 1.825.

18. _ A second copy of the published international application under 35 U.S C. 154(d)(4).

19. _ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).

20. _x_ Other items or information:

COPY OF THE INTERNATIONAL SEARCH REPORT PREPARED BY THE AUSTRALIAN PATENT OFFICE;
COPY OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT; AND
CONFIRMATION POSTCARD.

JC13 Rec'd PCT/PTO 22 MAR 2002

| U.S. APPLICATION NO. (If known, see 37 C F R 1 5(l) 10/089119 | INTERNATIONAL APPLICATION NO. PCT/AU00/01170 | ATTORNEY'S DOCKET NUMBER 27795-00028USPX |
|---|---|---|

| | CALCULATIONS | PTO USE ONLY |
|---|---|---|
| 17. X The following fees are submitted: | | |
| **Basic National Fee (37 CFR 1.492(a)(1)-(5)):** | | |
| Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO ..... $1,040.00 | | |
| International preliminary examination fee NOT paid to USPTO but International Search Report prepared by the EPO or JPO ..... $890.00 | | |
| International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... $710.00 | | |
| International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... $690.00 | | |
| International preliminary examination fee (37CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) ..... $100.00 | | |
| **ENTER APPROPRIATE BASIC FEE AMOUNT =** | $ 1040 | |
| Surcharge of **$130.00** for furnishing the oath or declaration later than ___ 20 ___ 30 months from the earliest claimed priority date (37 CFR 1.492(e)). | | |

| Claims | Number Filed | Number Extra | Rate | | |
|---|---|---|---|---|---|
| Total Claims | 34 - 20 = | 14 | x $18.00 | $ 252 | |
| Independent Claims | 7 - 3 = | 4 | x $84.00 | $ 336 | |
| Multiple dependent claims(s) (if applicable) YES | | | + $280.00 | $ 280 | |
| **TOTAL OF ABOVE CALCULATIONS =** | | | | $ | |
| Reduction by ½ for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28). | | | | $ | |
| **SUBTOTAL =** | | | | $ 1908 | |
| Processing fee of **$130.00** for furnishing the English translation later the ___20 ___30 months from the earliest claimed priority date (37 CFR 1.492(f)). | | | | $ | |
| **TOTAL NATIONAL FEE =** | | | | $ 1908 | |
| Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property + | | | | $ | |
| **TOTAL FEES ENCLOSED =** | | | | $ 1908 | |
| | | | | **Amount to be: refunded** | $ |
| | | | | **charged** | $ |

a. X A check in the amount of $1908 to cover the above fees is enclosed.
b. ___ Please charge my Deposit Account No. 10-0447 in the amount of $_____ to cover the above fees. A duplicate copy of this sheet is enclosed.
c. X The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 10-0447. A duplicate copy of this sheet is enclosed.

**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.**

SEND ALL CORRESPONDENCE TO:

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23932
PATENT TRADEMARK OFFICE

SIGNATURE

Stanley R. Moore
NAME

26,958
REGISTRATION NUMBER

10/089117
JC13 Rec'd PCT/PTO 22 MAR 2002

Docket No. 27795-00028USPX
P17524USPC

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | | |
|---|---|---|
| In re Application of: Mark Alan HOLLIS et al. | ) | |
| Serial No.: Not Yet Assigned | ) | Examiner: Not Yet Known |
| Filed: Filed Herewith | ) | Group Art Unit: Not Yet Known |

For: Transport of Encoded Information Across a Core Network

Box DE/EO/US
Assistant Commissioner for Patents
Washington, D. C. 20231

**CERTIFICATE OF MAILING BY EXPRESS MAIL**

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I hereby certify that this paper, including the documents referred to therein, or fee is being deposited with the U.S. Postal Service "Express Mail Post Office to Addressee" service under 37 CFR § 1.10 on the date indicated above and is addressed to:

Box DO/EO/US
Assistant Commissioner for Patents
Washington, D.C. 20231

Type or Print Name . . . . . Carla Elkins

Signature . . . . . Carla Elkins

Dear Sir:

PRELIMINARY AMENDMENT

Please amend the above-identified application for patent as follows:

IN THE CLAIMS

Please cancel claims 29 and 30.

Docket No. 27795-00028USPX
P17524USPC

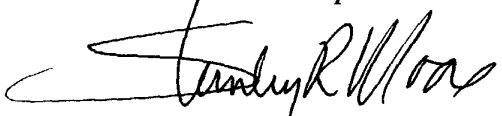
REMARKS

It is respectfully submitted that the amendments made to the claims herein are neither being presented nor made in response to the citation of any prior art known to the Applicant or the Applicant's attorneys. These claim amendments are further not made for any reason related to any statutory requirements for patentability. These claim amendments are made solely to more completely claim that to which the Applicant is entitled. Applicant's invention should only be considered limited by the claims as they now exist and the equivalents thereof. It is not the Applicant's intent to narrow any claim element by the amendments made herein. It is submitted that no new matter has been added.

In view of the foregoing, Applicant respectfully requests the thorough and complete examination of this application and earnestly solicits an early notice of allowance.

Respectfully submitted,

JENKENS & GILCHRIST,
A Professional Corporation



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# TRANSPORT OF ENCODED INFORMATION ACROSS A CORE NETWORK

## FIELD OF INVENTION

The present invention relates generally to the transport of information between telecommunications nodes. In one aspect, the present invention relates to the transport of encoded information across a core network, and in particular to the transport of encoded information to and from an endpoint in an access network via a core network. The invention is suitable, in one aspect, for use in the transmission of AMR encoded voice information to and from a mobile terminal in third-generation radio access networks across an ATM core network and it will be convenient to hereinafter describe the invention in relation to that exemplary application. It should be appreciated, however, that the invention is not limited to that application, only.

## BACKGROUND OF INVENTION

The evolution of mobile communications systems and broadband multi-service networks are generally expected to merge in third-generation mobile systems that will provide global multimedia access to the mobile user. The concept referred to in Europe as the Universal Mobile Telecommunication System (UMTS) and globally as International Mobile Telecommunications in the year 2000 (IMT-2000) includes high-level access to multimedia services and evolution from second-generation mobile systems as key components. Standardization of this new system is carried out mainly by the 3rd Generation Partnership Project (3GPP) and the International Telecommunication Union - Telecommunication Standardization Sector (ITU-T).

UMTS / IMT-2000 separates the access functionality from the core network functionality, providing a common core network to support various types of access networks. Access Networks provide core-network-technology-independent access platforms for mobile terminals to all core networks and network services. In order to support the convergence of fixed and mobile telecommunications networks, a common core network for both fixed and mobile access is envisaged.

Preferably, the first network is an access network. The first network may, for example, be a Public Land Mobile Network PLMN.

Preferably, the first network is a radio access network.

Preferably, the radio access network is a UMTS access network.

Preferably, the message encoding format profile functionality is located in a node of the core network.

Preferably, the node is a UMSC of the core network.

Preferably, the encoded information is AMR codec encoded information.

Preferably, a telecommunication system including the message encoding format profile functionality, further includes a third network based on the first technology, in communication with the second network, and wherein the message encoding format profile functionality is adapted to enable transport of encoded information along at least a portion of a path of communication established between the first and third networks.

In essence, the present invention realises that prior art networks do not provide support for transport of encoded information across core networks when communicating with access networks. In the present invention, it is proposed that the encoded information from an access network is interworked or mapped into the existing core technology transport mechanism by providing a profile functionality between the dissimilar message formats. An advantage of the present invention is that the profile functionality allows for endpoints or nodes separated by a core network to communicate more effectively and negotiate and agree on parameters of communication.

A further aspect of the present invention provides a method of transporting encoded speech information to and from a first endpoint in an access network across an ATM core network, said access network being connected to said core network via first telecommunications node, said method including:

(a) generating an AMR encoded packet at said first endpoint from a digitised speech signal;

(b) transmitting said AMR encoded packet to said first telecommunications node,

(c) mapping the contents of said AMR encoded packet at said first telecommunications node into an ATM Convergence Sublayer Protocol Data Unit; and

(d) transmitting said ATM Convergence Sublayer Protocol Data Units across said core network to said second telecommunications node;

(e) reconstructing said AMR encoded packet from said ATM Convergence Sublayer Protocol Data Unit at a second telecommunications node within or at an interface to said ATM core network.

The ATM Convergence Sublayer Protocol Data Units may be transported across the ATM core network as AAL2 Common Part Sublayer Packets, such as I.366.2 Type 1 packets.

Another aspect of the present invention provides a telecommunications system including:

one or more access networks connected to an ATM core network,

a first endpoint in communication with said core network via said a first of said access networks, and

first and second telecommunications nodes both of which are within or at interfaces to said ATM core network, wherein

said first endpoint acts to generate an AMR encoded packet at said first endpoint from a digitised speech signal and transmits said AMR encoded packet to said first telecommunications node, and wherein

said first telecommunications node acts to map the contents of said AMR encoded packet into an ATM Convergence Sublayer Protocol Data Unit and transmits said ATM Convergence Sublayer Protocol Data Unit across said core network to said second telecommunications node for reconstruction of said AMR encoded packet.

Yet another aspect of the present invention provides a first telecommunications node for use in a telecommunications system including one or more access networks connected to an ATM core network, a first endpoint in communication with said core network via a first of said access networks, and a second telecommunications node, said first and second telecommunications nodes both being within or at interfaces to said ATM core network, wherein said

first endpoint acts to generate an AMR encoded packet from a digitised speech signal and transmits said AMR encoded packet to said first telecommunications node, wherein said first telecommunications node includes:

processing means to map the contents of said AMR encoded packet into an ATM Convergence Sublayer Protocol Data Unit, and

transmission means to transmit said ATM Convergence Sublayer Protocol Data Unit across said core network to said second telecommunications node for reconstruction of said AMR encoded packet from said ATM Convergence Sublayer Protocol Data Unit.

BRIEF DESCRIPTION OF DRAWINGS

The following description refers in more detail to the various features of the present invention. To facilitate an understanding of the invention, reference is made in the description to the accompanying drawings where the invention is illustrated in a preferred, non-limiting embodiment.

In the drawings:

Figure 1 is a schematic diagram illustrating a cellular system including an ATM core network interconnecting fixed and mobile access networks; and

Figure 2 is a schematic diagram showing the structure of a CPS-Packet used to transport AMR encoded information over the ATM core network of Figure 1.

DESCRIPTION OF PREFERRED EMBODIMENT

Referring to Figure 1, there is shown generally a schematic representation of third-generation cellular system 1 including an ATM core network 2 which has two parallel UMTS Terrestrial Radio Access Networks (UTRANs) 3 and 4 linked to it. Additionally, two fixed networks are linked to the ATM core network 2, namely a PTSN/ISDN+ network 5 and an internet/intranet+ network 6. The core network 2 acts to transport information between telecommunications nodes or endpoints forming part of or in communication with any of the networks 3 to 6.

The ATM core network 2 includes at least a first Universal Mobile Telecommunications System Mobile Switching Center (UMSCa) 7 connected to the UTRAN 3 across an interface known as the Iu-interface. The UTRAN 3 includes at least a first Radio Network Controller (RNCa) 8 and Base Stations

(BS) 9 connected to them. Mobile Terminals 10 communicate with the Base Stations 9 across an air interface 11. Similarly, the ATM core network 2 also includes at least a second Universal Mobile Telecommunications System Mobile Switching Center (UMSCb) 12 connected to the UTRAN 4 across an Iu-interface. The UTRAN 4 includes at least a first Radio Network Controller (RNCb) 13 and Base Stations (BS) 14 connected to them. Mobile Terminals 15 communicate with the Base Stations 14 across an air interface 16.

The UMSCa 7 includes processing means 7a for controlling its various functions, including data mapping, reconstruction, manipulation and switching, and transceiving means 7b for transmitting and receiving information to and from other nodes or endpoints in the cellular system 1. The UMSCb 12 similarly includes processing means 12a and transceiving means 12b.

The Base Stations 9 and 14 contain equipment for transmission and reception of information to and from the Mobile Terminals 10 and 15, as well as equipment for encryption/decryption, signal strength measurement and for communication with the Radio Network Controllers 8 and 13. The Radio Network Controllers 8 and 13 set up radio channels for voice and other traffic and for signaling to the UMSCs 7 and 12, and monitor the access network portion of connections established. The UMSCs 7 and 12 serve as an interface to the ATM core network 2 and beyond to other access networks, and control the operation of the Radio Network Controllers 8 and 13.

Each of the Mobile Terminals 10,15 includes an Adaptive Multi-Rate (AMR) Speech Coder-Decoder (Codec) for converting analog speech to and from digital information suitable for transport across a first of the access networks 3 to 6, the ATM core network 2 and finally a second of the access networks 3 to 6.

ADAPTIVE MULTI-RATE (AMR) SPEECH CODER-DECODER (CODEC)

The AMR Speech Codec consists of a multi-rate speech coder, a source controlled rate scheme including a voice activity detector and a comfort noise generation system, and an error concealment mechanism to combat the effects of transmission errors and lost packets. The multi-rate speech coder is a single integrated speech codec with eight source rates from 4.75 kbits/sec to 12.2

kbits/sec, and a low rate background noise encoding mode. The speech coder is capable of switching its bit-rate every 20 ms speech frame upon command.

During operation of the cellular system 1, the speech encoder of one of the Mobile Terminals 10,15 may take its input as a Pulse Coded Modulated (PCM) signal from the audio part of that Mobile Terminal. The AMR encoded speech at the output of the speech encoder is packetised and sent to the UMSCa 7 via the RNCa 8. The AMR codec has eight possible modes of operation in active mode plus one mode of operation in passive mode (comfort noise during silence periods). It outputs a block of bits every 20 ms and can switch between modes on a per frame basis. As indicated in Table 1 below, the number of bits in each block depends on the mode of operation.

| AMR Codec Mode | Speech bits | Class A bits | Class B bits | Class C bits |
|---|---|---|---|---|
| AMR 12.2 | 244 | 81 | 103 | 60 |
| AMR 10.2 | 204 | 65 | 99 | 40 |
| AMR 7.95 | 159 | 75 | 84 | 0 |
| AMR 7.4 | 148 | 61 | 87 | 0 |
| AMR 6.7 | 134 | 55 | 79 | 0 |
| AMR 5.9 | 118 | 55 | 63 | 0 |
| AMR 5.15 | 103 | 49 | 54 | 0 |
| AMR 4.75 | 95 | 39 | 56 | 0 |
| Speech Pause (1.8 kbits/s) | 35 | N/A | N/A | N/A |

Table 1 – Block Size for each AMR Mode

The blocks for active modes are divided into three categories, or sub-blocks, of bits (A, B and C) with different relative importance. Class A bits carry most of the encoded information and therefore require high protection. Class B and C bits carry a smaller amount of information and require less or no protection. Corrupted class A sub-blocks are either provided to the decoder in the User Equipment receiving the AMR encoded packet with an indication of their level of

corruption or are discarded. Corrupted class B and C sub-blocks can be passed to the decoder without indication of their level of corruptness.

In the "Speech Pause" mode, the encoder generates three types of frames, namely an SID_First frame, an SID_Update frame or a No_Data frame. The SID_First frame indicates the beginning of a silence period and contains no useful data. The SID_Update frame carries comfort noise, which is calculated over a period of 8 frames (160 ms) and sent every eighth frame. No_Data frames are generated by the AMR encoder during silence periods every 20 ms between SID_Update frames. They contain no useful information and are not transmitted over either of the UTRANs of Figure 1.

TRANSPORT OF AMR ENCODED INFORMATION ACROSS AN ATM CORE NETWORK

The AMR encoded speech is transported to and from one of the Mobile Terminals 10 to one of the Mobile Terminals 15, and vice-versa, across the ATM core network 2. In the example illustrated in Figure 1, the ATM core network 2 uses the ATM Adaptation Layer Type 2 (AAL2) transmission protocol, which provides for bandwidth-efficient transmission of low-rate, short and variable length packets in delay sensitive applications. AAL2 is divided into a Common Part Sub-Layer (CPS) and a Service Specific Convergence Sub-Layer (SSCS). The purpose of the SSCS is to convey narrow-band calls consisting of voice, voiceband data, or circuit mode data as Convergance Sublayer Protocol Data Units. Different SSCSs have been defined to support specific AAL2 user services, or groups of services. One such SSCS is defined in the ITU-T Recommendation I.366.2, otherwise known as I.trunk. ATM Convergence Sublayer Protocol Data Units may be transported across the ATM core network as AAL2 Common Part Sublayer Packets, such as I.366.2 Type 1 packets.

When the AMR encoded speech packet is received at the UMSCa 7 from one of the Mobile Terminals 10, its contents are mapped by the processing means 7a of the UMSCa 7 into an I.366.2 Type 1 packet. An illustration of an I.366.2 Type 1 packet 30 is shown in Figure 2. The I.366.2 Type 1 packet 30 includes a packet header 31 and a payload 32. The payload 32 has a variable

length up to a maximum of 45 octets. The packet header 31 includes a User-to-User Indication (UUI) and a Length Indicator (LI).

A UUI codepoint range of 0-15 is selected for the I.366.2 Type 1 packet 30. Codepoints in this range indicate to nodes within the cellular network 1 that the payload 32 contains encoded audio information. For speech and other audio, the encoding format is an SSCS parameter of operation which must be agreed to between the USMCa 7 and the UMSCb 12 prior to transmission of the I.366.2 Type 1 packet 30.

The particular encoding format used by the UMSCs 7 and 12 for each of the AMR Codec Modes shown in Table 1 is characterised by a predetermined encoding format profile. Encoding format profiles are mappings that inform the receiver of an I.366.2 Type 1 packet 30 how to interpret the packet content. By making reference to the identifiers of these profiles, the UMSCa 7 and the UMSCb 12 can agree on one of the major operating parameters of the SSCS. An exemplary predefined profile referencing explicit packet formats is shown below in Table 2. The table lists standard ETSI-defined AMR Encoding Data Unit (EDU) formats to be used by the UMSCa 7 and the UMSCb 12. Details of the AMR EDU formats have not been included in this description, but are readily available from ETSI Technical Specifications.

| UUI Codepoint Range | Packet Length (Octets) | Encoding Format Reference | Description of Encoding Algorithm | M | Packet Time (ms) | Sequence Number Interval (ms) |
|---|---|---|---|---|---|---|
| 0-15 | 31 | AMR 12.2 EDU format | AMR 12.2 | 1 | 20 | 20 |
| 0-15 | 26 | AMR 10.2 EDU format | AMR 10.2 | 1 | 20 | 20 |
| 0-15 | 21 | AMR 7.95 EDU format | AMR 7.95 | 1 | 20 | 20 |
| 0-15 | 19 | AMR 7.4 EDU format | AMR 7.4 | 1 | 20 | 20 |
| 0-15 | 18 | AMR 6.7 EDU format | AMR 6.7 | 1 | 20 | 20 |
| 0-15 | 16 | AMR 5.7 EDU format | AMR 5.9 | 1 | 20 | 20 |
| 0-15 | 14 | AMR 5.1 EDU format | AMR 5.15 | 1 | 20 | 20 |
| 0-15 | 13 | AMR 4.75 EDU format | AMR 4.75 | 1 | 20 | 20 |
| 0-15 | 2 | AMR SID_First EDU format | AMR ID_First[x] | 1 | - | - |
| 0-15 | 6 | AMR SID_Update EDU format | AMR S50 ID_Update [x] | 1 | 160 | 160 |
| 0-15 | 1 | AMR No_Data EDU format | No-Data | 1 | 20 | 20 |

Table 2 – AMR Encoding Format Profile

An AMR EDU is an octet-aligned concatenation of the frames of an AMR audio algorithm entailing a specific format of bits. Every AMR encoded audio packet contains an integral number of EDUs. It will be observed, however, that the size of speech frames of the AMR is not octet aligned for all modes of operation, and for this reason bit stuffing is used in some AMR Codec Modes to achieve octet frame structure for the AMR frame.

The definitions of the profile shown in table 2 includes the following information for each AMR Codec Mode : UUI codepoint range, packet length, reference to the EDU format, description of the algorithm, value of "M" (the

number of service data units in an AMR packet), packet time and sequence number interval.

Upon receipt of the I.366.2 Type 1 packet 30 by the UMSCb 12, the processing means 12a of the UMSCb 12 extracts the AMR encoded speech information from the I.366.2 Type 1 packet by comparison of the payload of the packet 30 with the encoding format profile and detailed bit allocations stored in the UMSCb 12 previously agreed to with the UMSCa 7. The processing means 12b of the UMSCb 12 then reconstructs a corresponding AMR encoded packet for transmission by the transceiving means 12b to the RNCb 13, and ultimately one of the Mobile Terminals 15.

It is to be understood that various modifications and/or additions may be made to the aforementioned method and system without departing from the ambit of the present invention.

For example, the cellular system shown in Figure 1 may include elements of second and/or third generation cellular systems, such as a GSM, D-AMPS, IS-136 or other radio access networks.

Moreover, whilst a Type 2 Adaptation Layer is used in the ATM core network 2 described above, it is envisaged that other types of adaptation layers, and other types of ATM Convergence Sublayer Protocol Data Units, may be used in conjunction with the invention to transport AMR encoded packets across an ATM core network.